

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of:	Dianne ELLIS et al.	)	Examiner:	Arti R Singh-Pandey
		)		
Application No.:	10/699,425	)	Group Art Unit:	1794
		)		
Filed:	October 31, 2003	)	Confirmation No.:	3280
		)		
Docket No.:	02-292	)		

For: ANTI-MICROBIAL NONWOVEN WIPE

**APPEAL BRIEF**  
**UNDER 37 C.F.R. § 41**

Mail Stop **Appeal Brief — Patents**  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

**(1) Identification**

The appellants, application, and the Examiner's identification data associated with this paper are provided in the above-captioned heading.

The appellants hereby file an Appeal Brief under 37 C.F.R. § 41.37 and 41.31(a)(1) in response to the Office Action of December 29, 2009 with at least one claim on appeal having been twice rejected, together with the applicable fee under 37 C.F.R. § 41.20(b)(2).

A Notice of Appeal under 37 C.F.R. § 41.31 was previously filed with the applicable fee under § 41.20(b)(1) on August 13, 2009 together with a Pre-Appeal Brief Request For Review. The previously paid notice of appeal fee of August 13, 2009 has been applied to this new appeal, and no notice of appeal fee is currently due.

**(2) Table of Contents**

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**(3) Real Party in Interest**

The real party in interest in this case is *Polymer Group, Inc.*

**(4) Related Appeals and Interferences**

The appellants are not aware of any other appeals or interferences that will directly affect, be directly affected by, or have a bearing on the Board's decision in the present appeal.

**(5) Status of Claims**

Claims 1-3 and 5-14 are canceled.

Claims 4 and 15-22 are rejected.

No claims are withdrawn.

Claims 4 and 15-22 are on appeal.

**(6) Status of Amendments**

No amendment has been filed subsequent to the Examiner's most recent Office Action of December 29, 2009.<sup>1</sup>

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<sup>1</sup> Claims 4 and 15-22 have been at least twice rejected, such as shown in the Office Actions dated December 29, 2009 and July 22, 2009. Therefore, this present application is ripe for appeal.

**(7) Summary of Claimed Subject Matter**

**I. Concise Explanation of the Subject Matter Defined in Independent Claims and Separately Argued Dependent Claims**

**a) Independent Claim 4**

Independent claim 4 is directed to a nonwoven anti-microbial wipe (page 2, lines 24-25; page 7, line 10) comprising

a fibrous nonwoven substrate (page 3, lines 27-28; page 7, line 11)

coated with a non-ionic and cationic binder mixture (page 6, lines 11-12; page 7, lines 11-12) and subsequently coated with

a cationic dual quaternary ammonia anti-microbial agent (page 3, lines 12-13; page 7, lines 8-9, 12-13),

the cationic dual quaternary ammonia anti-microbial agent being readily released upon being introduced to an associated water source (page 3, lines 14-18; page 7, lines 13-14).

**b) Independent Claim 19**

Independent claim 19 is directed to a nonwoven anti-microbial wipe (page 2, lines 24-25; page 7, line 10) comprising:

a three-dimensionally imaged fibrous nonwoven substrate (page 4, lines 10-16)

coated with a non-ionic and cationic binder mixture (page 6, lines 11-12; page 7, lines 11-12) and subsequently coated with

a cationic dual quaternary ammonia anti-microbial agent (page 3, lines 12-13; page 7, lines 8-9, 12-13),

the cationic dual quaternary ammonia anti-microbial agent being readily released

upon being introduced to an associated water source (page 3, lines 14-18; page 7, lines 13-14), and  
a scrim layer reducing the extensibility of said three-dimensionally imaged fibrous nonwoven  
substrate (page 4, lines 10-19).

**c) Independent Claim 21**

Independent claim 21 is directed to a nonwoven laminate anti-microbial wipe (page 2, lines  
24-25; page 7, line 10) comprising:

a fibrous nonwoven substrate (page 3, lines 27-28; page 7, line 11)

coated with a non-ionic and cationic binder mixture (page 6, lines 11-12; page 7,  
lines 11-12) and subsequently coated with

a cationic dual quaternary ammonia anti-microbial agent (page 3, lines 12-13; page  
7, lines 8-9, 12-13),

said cationic dual quaternary ammonia anti-microbial agent being readily released  
upon being introduced to an associated water source (page 3, lines 14-18; page 7, lines 13-14), and

an additional layer selected from the group consisting of a fabric layer and a film layer (page  
6, lines 6-8).

**d) Dependent Claim 22**

Dependent claim 22, which depends from claim 21, further specifies that the additional layer is a  
film layer selected from the group consisting of a cast film, an extruded film, and a reticulated film  
(page 6, lines 6-8).



**(8) Grounds of Rejection to be Reviewed on Appeal**

1) Whether claims 4 and 15-22 are unpatentable under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 5,522,942 to Graubart et al. in view of U.S. Patent No. 7,013,541 B2 to Rivera et al.

**(9) Argument**

**1. Rejection Under 35 U.S.C. § 103(a) Over Graubart et al. (U.S. Patent No. 5,522,942) in view of Rivera et al. (U.S. Patent No. 7,013,541 B2)**

**Claim 4**

Claims 4 and 15-22 were rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 5,522,942 to Graubart et al. in view of U.S. Patent No. 7,013,541 B2 to Rivera et al.

***The Examiner's Position***

According to the Office Action dated December 29, 2009 (pages 2-4), claims 4 and 15-22 are unpatentable over the Graubart et al. in view of Rivera et al. for the following reasons.

The Examiner states that Graubart et al. discloses wipes for cleaning hard surfaces that comprise a discovered synergistic cleaning composition comprising: an aqueous solution containing a quaternary ammonium compound component, nonionic surfactant component, and glycol ether solvent. The Examiner equates the glycol ether solvent as the cationic portion of the mixture required by the current set of claims. The Examiner states Rivera et al. discloses two side imaged nonwovens having additional scrim layers or additional layers (film) within their composite, and that the nonwovens are natural staple length carded and cross lapped, the nonwoven can be made into hard surface wipes, and the fibers used to create the nonwoven can be natural fibers. The Examiner also states that, alternatively, looked at another way, Rivera et al. could be relied upon for its structure of the wipe and Graubart relied upon for the compositional makeup of the cleaning solution. The Examiner further states that, therefore, a skilled artisan would have found it obvious to have substituted one cleaning solution for another, and one would have been motivated to do so in order to provide a cleaning wipe which cleans a specific surface such as glass, thereby justifying exchanging one cleaning solution for another.

For the following reasons, the appellants request review and reversal of this rejection.

***The Appellants' Position***

The present invention, as recited in claim 4, is directed to:

a nonwoven anti-microbial wipe comprising:

a fibrous nonwoven substrate, which is coated with

a non-ionic and cationic binder mixture, and subsequently coated with

a cationic dual quaternary ammonia anti-microbial agent, and

the anti-microbial agent is readily released upon introduction to a water source.

Independent claim 19 is similar to claim 4 and further recites the fibrous nonwoven substrate is three-dimensionally imaged and includes a scrim layer reducing the extensibility of the nonwoven substrate. Independent claim 21 is similar to claim 4 and further recites an additional layer selected from the group consisting of a fabric layer and a film layer.

As recited in claims 4, 19, and 21 on appeal, these combined chemical and structural features, where a cationic dual quaternary ammonia anti-microbial agent is structurally coated on top of a separately coated non-ionic binder and cationic binder mixture, can interact in an unexpected manner such that the cationic dual quaternary ammonia anti-microbial agent is readily released when the wipe is introduced to a water source. The cationic disinfectant is releasably absorbed into the fibrous nonwoven substrate of the wipe of the present claims. That is, the disinfectant must be initially absorbed into the binder component of the wipe from a coating so that it can be carried by the wipe. Once absorbed, the wipes of the present claims are capable of readily releasing the disinfectant into water when used in a cleaning application, which intensifies the sanitization operation. Disinfectant absorption by a carrier binder and its rapid release from the carrier into water are functions and objectives that can be in conflict with each other. As explained in the present application, a cationic binder itself may not be able to properly absorb a cationic

disinfectant due to the lack of affinity of the binder to a similarly charged disinfectant (page 2, lines 12-14). By combining a nonionic binder with a cationic binder, it has been found in the present invention that the non-ionic binder component of the binder mixture is sufficiently compatible with a cationic disinfectant wherein the disinfectant can be absorbed into a nonwoven wipe, and this compatibility also is marked by a low affinity between the binder and disinfectant with weak bonds formed that are easily broken such that the wipe can readily release the disinfectant into a water source (e.g., page 3, lines 9-18). Further, the cationic disinfectant and the cationic binder component of the binder mixture have the same charge (i.e., positive charge), which can assist the rapid release of the disinfectant from the wipe into a water source and/or prevent high affinity retentions of the disinfectant to the wipe.

The factual record shows that the Graubart et al. and Rivera et al. references relied upon by the Examiner in making the final rejection clearly fail to teach, suggest or predict the result of the combined features of a nonwoven antimicrobial wipe including all the above-discussed features recited in present claims 4, 19, and 21, in view of the following reasons.

**1. “A *nonwoven wipe comprising ... a fibrous nonwoven substrate*”**

Graubart et al. is missing the presently claimed feature of a nonwoven wipe comprising a fibrous nonwoven substrate. Rivera et al. does not compensate for this deficiency.

Graubart et al. shows a cleaning solution for use with a sponge.

The Examiner acknowledges that Graubart et al. does not disclose the structural and chemical makeup of the nonwoven itself or the additional layers (Office Action, page 3). None of the terms “wipe”, “nonwoven”, “cloth”, or “fabric” or the like appear anywhere in Graubart et al. This should not be surprising as Graubart et al.’s stated invention is a “synergistic cleaning composition” in the form of an aqueous solution and a method for cleaning hard surfaces with the

cleaning solution (Title, Abstract, Claims). The present invention is a nonwoven wipe, not a cleaning solution, nor a combination of a cleaning solution with a sponge.

In fact, Graubart et al. teach their cleaning solution is useful with a sponge. In Example II at column 8 of Graubart et al., a “sponge” is used in a Gardner Washability Apparatus to measure cleaning efficacy of a cleaning solution according to an embodiment of Graubart et al.’s invention. A sponge is not a nonwoven fibrous substrate.

Rivera et al. is particularly directed to compound three-dimensionally imaged nonwoven fabrics. Three-dimensionally-imaged nonwoven fabrics are not sponge structures. Rivera et al. also does not teach or suggest the nonwoven fabric shown in that reference can be a substitute for a sponge. The Examiner provides no apparent reason in the Office Action on why one of ordinary skill in the art would consider using a cleaning solution designed for use in a sponge as in Graubart et al. in a three-dimensionally imaged nonwoven fabric such as shown by Rivera et al., nor why such a different use would have a predictable outcome.

**2. “A nonwoven wipe comprising ... a fibrous nonwoven substrate ... coated with a binder mixture”**

The Examiner states that Graubart et al. show the inclusion of a glycol ether solvent in the cleaning composition and is “equating the glycol ether solvent as the cationic portion of the mixture required by the current set of claims” (Office Action, page 3).

The Examiner’s apparent equating of the glycol ether solvent of Graubart et al.’s cleaning solution with the “cationic portion of the mixture required by the claims” is incorrect because a solvent, by definition, is a dispersant and not a “binder mixture” as required in the present claims on appeal. The term “binder” has a common ordinary meaning in the chemical arts of something that produces or promotes cohesion in loosely assembled substances. The solvent as shown by Graubart

et al. is the opposite of a binder. The required glycol ether solvent ingredient of the cleaning solution of Graubart et al., a dispersant, diverges from the use of a binder in the nonwoven wipe of the present claims, and, therefore, *teaches away* from the present invention. *In re Gurley*, 27 F.3d 551, 553, 31 USPQ2d 1130, 1131 (Fed. Cir. 1994). Further, the inclusion of a binder in the cleaning solution of Graubart et al. would be expected to interfere with the solvent-dispersing action imparted by the glycol ether and render the resulting solution unsatisfactory for its intended purpose, and such a modification would not have been *prima facie* obvious. *Tec Air Inc. v. Denso Mfg. Michigan Inc.*, 192 F3d 1353, 1360, 52 USPQ2d 1294, 1298 (Fed. Cir. 1999); *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fe. Cir. 1984).

In addition, Formulation 1 and Comparative Formulation 1 disclosed in the Examples section of Graubart et al., columns 7-8, also do not disclose any ingredient that is a binder, nor a cationic binder, nor a non-ionic/cationic binder mixture as recited in the claims on appeal. This also is not surprising in view of the fact that Graubart et al. does not teach or suggest using a sponge as a carrier for absorbing the cleaning solution from which it can be released when placed in a water source, and unlike the modified nonwoven fabrics of the present claims on appeal which include a binder mixture not taught by Graubart et al. for those features. Graubart et al. would be understood by a person of ordinary skill in the art to show a sponge that would be immersed in a cleaning solution at the time of a cleaning operation. The sponge of Graubart et al. is not taught or suggested to have content, such as a binder component, operable to pre-absorb the cleaning solution for an undefined period of time before a cleaning operation when immersed in water.

Clearly, Graubart et al. does not bind the cleaning solution to a sponge with a binder mixture, and teaches away from such an arrangement by the solvent chemistry that is disclosed for use. Rivera et al. does not compensate for these deficiencies of Graubart et al. The Office Action

(page 3) is incorrect in suggesting the provision of a “wipe with enhanced strength and durability in the overall composite” would motivate one to use the “composite” of Rivera et al. as the base substrate for the wipes of Graubart et al. Rivera et al. refers to the optional use of a polymeric binder composition in the compound three-dimensionally imaged nonwoven fabrics that can be selected to enhance durability characteristics of the fabric while maintaining the desired softness and drapeability of the three-dimensionally imaged fabric (column 6, lines 23-27). Rivera et al.’s concern with softness and drapeability features of a three-dimensionally imaged fabric are not features shared with a sponge structure. As indicated, Graubart et al.’s cleaning solution is used with an entirely different carrier structure (i.e., sponge) and release mechanism (i.e., solvent dispersed) than Rivera et al. In view of these facts, a person of ordinary skill in the art would have no apparent reason to use the polymeric binder composition of Rivera et al. with the sponge of Graubart et al., nor would there be a predictable result from such a combination.

**3. “a non-ionic and cationic binder mixture”**

Graubart et al. also is missing the presently claimed feature of a nonionic and cationic binder mixture. Rivera et al. does not compensate for this deficiency.

Glycol ether solvent used by Graubart et al. is not a “cationic” charged chemical compound, and thus cannot qualify as a *cationic* compound, and particularly not a cationic binder as required in the present claims. As explained by Graubart et al., the glycol ether solvent has the structure  $R_9-O-R_{10}-OH$  where  $R_9$  is an alkoxy of 1 to 20 carbon atoms or aryloxy of at least 6 carbon atoms, and  $R_{10}$  is an ether condensate or propylene glycol and/or ethylene glycol having from one to ten glycol monomer units, such as diethylene glycol n-butyl ether having the formula:  $C_4H_9OCH_2CH_2OCH_2CH_2OH$  (column 5, lines 30-53). The glycol ether solvent of Graubart et al. clearly is not charged, nor cationic charged, nor is it a cationic binder.

Rivera et al. refers to the optional use of a “polymeric binder composition”. There is no teaching from the reference or apparent reason given in the Office Action to conclude that “a polymeric binder composition” suggests or necessarily is a non-ionic and cationic binder mixture. Rivera et al. fails to show any cationic binder component incorporated into a nonwoven fabric for any reason, and also fails to show any quaternary ammonia anti-microbial agent incorporated into a nonwoven fabric for any reason, and further fails to predict the outcome of combining such a missing cationic binder in combination with a non-ionic binder as a binder mixture coated on the nonwoven in combination with an overcoat of cationic dual quaternary ammonia anti-microbial agent. As indicated, this combination of different types of binders in a coating combined with a nonwoven fabric can impart advantageous disinfectant retention and release characteristics in the nonwoven wipe products of the present claims on appeal.

**4. *No Apparent Reason To Modify Graubert et al. In View of Rivera et al.***

There is no apparent reason identified with specificity by the Examiner for why one of ordinary skill in the art would have considered modifying Graubart et al.’s cleaning solution and sponge based on the teachings of Rivera et al. to:

(1) replace the sponge with a compound three-dimensionally imaged nonwoven fibrous substrate *and*

(2) also use a nonionic/cationic binder mixture coating in particular in combination with the cleaning solution of Graubart et al., nor why such a hypothetical combination would be expected to yield a predictable result.

Such an apparent reason is not provided by Graubart et al. or Rivera et al., nor has the Examiner “articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007)(quoting *In re Kahn*, 441



F.3d 977, 988 (Fed. Cir. 2006)).

**5. All Claim Features Not Taught Or Suggested by Prior Art**

Further, to render the present independent claims 4, 19, or 21 unpatentable, the Examiner's asserted combination of the patents to Graubart et al. and Rivera et al. must teach or suggest *each and every claim feature*. See *In re Royka*, 490 F.2d 981, 985, 180 USPQ 580 (CCPA 1974) (emphasis added) (to establish *prima facie* obviousness of a claimed invention, all the claim features must be taught or suggested by the prior art); "obviousness requires a suggestion of all limitations in a claim." *CFMT, Inc. v. Yieldup Intern. Corp.*, 349 F.3d 1333, 1342 (Fed. Cir. 2003) (citing *In re Royka*, 490 F.2d at 985)). The combination of Graubart et al. and Rivera et al. cannot meet this "all elements" requirement for showing obviousness with respect to at least the nonionic/cationic binder mixture coating recited in claims 4, 19, and 21 on appeal.

In view of these reasons, Graubart et al. and Rivera et al. do not establish the *prima facie* obviousness of any of independent claims 4, 19, and 21, and any dependent claims therefrom. Therefore, the final rejection of claims 4 and 15-22 should be reversed.

**Claim 22**

Claim 22 on appeal further specifies that the additional layer included in the nonwoven laminate anti-microbial wipe in claim 21 is a film layer selected from the group consisting of a cast film, an extruded film, and a reticulated film.

***The Examiner's Position***

According to the Office Action dated December 29, 2009 (pages 3-4), claims 19-22 are unpatentable over the Graubart et al. in view of Rivera et al. for the following reasons. The Examiner states that Graubart et al. do not disclose that the nonwoven is imaged or that there is an additional scrim/film layer within the wipe, and that this also is remedied by Rivera et al. The

Examiner asserts that a person having ordinary skill in the art at the time of the invention was made would have found it obvious to have used the composite of Rivera et al. as the base substrate for the wipes created by Graubart et al., and that one would have been motivated to do this in order to provide a wipe with enhanced strength and durability in the overall composite.

***The Appellants' Position***

As indicated, present claim 22 on appeal. does not merely recite a “film layer”. Rivera et al. does not teach or suggest combining the nonwoven fabric having compound three-dimensional images with a film layer selected from the group consisting of a cast film, an extruded film, and a reticulated film. Rivera et al. show an “optional support layer or scrim” at column 5, lines 15-33, but no “film layer” as recited in claim 22 on appeal is taught or suggested. Rivera et al. only refers to “wovens, knits, open mesh scrims, and/or nonwoven fabrics” in this respect (see column 5, lines 23-25). A cloth, nonwoven, or mesh scrim is not a film layer as that term is understood by a person having ordinary skill in the art, nor a cast film, an extruded film, or a reticulated film in particular.

To render claim 22 unpatentable, the asserted combination of the patents to Graubart et al. and Rivera et al. must teach or suggest *each and every claim feature*, which requires a showing of a film layer selected from the group consisting of a cast film, an extruded film, and a reticulated film. *In re Royka*, 490 F.2d at 985. The Examiner has not identified factual evidence to support an assertion that Graubart et al. or Rivera et al. teach or suggest the indicated recitation of claim 22 on appeal. Therefore, the Examiner has not established evidence to support a conclusion that claim 22 on appeal is obvious over any teachings of Graubart et al. and Rivera et al.

Claim 22 is further patentably distinguishable from Graubart et al. and Rivera et al. for the reasons indicated above relative to its parent claim, claim 21, and reference is made thereto.

For at least these reasons, the Examiner's rejection of claim 22 should be reversed.

**Conclusion**

For the reasons set forth above, the appellants submit that the claims presently pending and on appeal in the above-captioned application meet all of the requirements of patentability. It is therefore respectfully requested that the Honorable Board reverse the Examiner and remand this application for issue.

Respectfully submitted,

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**(10) Claims Appendix**

4. A nonwoven anti-microbial wipe comprising a fibrous nonwoven substrate coated with a non-ionic and cationic binder mixture and subsequently coated with a cationic dual quaternary ammonia anti-microbial agent, said cationic dual quaternary ammonia anti-microbial agent being readily released upon being introduced to an associated water source.

15. A nonwoven anti-microbial wipe as in claim 4, wherein said anti-microbial wipe is a hard surface wipe.

16. A nonwoven anti-microbial wipe as in claim 4, wherein said fibrous nonwoven substrate comprises natural fibers.

17. A nonwoven anti-microbial wipe as in claim 4, wherein said fibrous nonwoven substrate comprises natural fibers selected from the group consisting of cotton, wood pulp and viscose rayon.

18. A nonwoven anti-microbial wipe as in claim 4, wherein said fibrous nonwoven substrate comprises carded and cross-lapped staple length fibers.

19. A nonwoven anti-microbial wipe comprising:

a three-dimensionally imaged fibrous nonwoven substrate coated with a non-ionic and cationic binder mixture and subsequently coated with a cationic dual quaternary ammonia anti-microbial agent, said cationic dual quaternary ammonia anti-microbial agent being readily released

upon being introduced to an associated water source, and

a scrim layer reducing the extensibility of said three-dimensionally imaged fibrous nonwoven substrate.

20. A nonwoven anti-microbial wipe as in claim 19, wherein said scrim layer is selected from a unidirectional filament scrim, a bi-directional filament scrim, an expanded film, and a thermoplastic spunbond.

21. A nonwoven laminate anti-microbial wipe comprising:

a fibrous nonwoven substrate coated with a non-ionic and cationic binder mixture and subsequently coated with a cationic dual quaternary ammonia anti-microbial agent, said cationic dual quaternary ammonia anti-microbial agent being readily released upon being introduced to an associated water source, and

an additional layer selected from the group consisting of a fabric layer and a film layer.

22. A nonwoven laminate anti-microbial wipe as in claim 21, wherein said additional layer is a film layer selected from the group consisting of a cast film, an extruded film, and a reticulated film.

**(11) Evidence Appendix**

None.

**(12) Related Proceedings Appendix**

None.